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THE FIRST OCCURRENCE OF THE SUBFAMILY ARTHENEINAE IN THE WESTERN HEMISPHERE WITH THE DESCRIPTION OF A NEW TRIBE (HEMIPTERA: LYGAEIDAE)

James A. Slater and Harry Brailovsky

Ecology and Evolutionary Biology, University of Connecticut,
Storrs, Connecticut 06268 and
Instituto de Biologia, UNAM, Departmento Zoologia,
Apdo Postal 70153, Mexico 04510 DF

Abstract.—The genus *Polychisme* Kirkaldy is reviewed. The type species *Imbrius ferruginosus* Stål is redescribed and recorded from Colombia and Venezuela. It is shown to be not congeneric with the only other species, *Pachymerus poecilus* Spinola, and is removed from the Ischnorhynchinae and placed in the Artheneinae as a new tribe, the Polychismini. *Polychisme poecilus* is placed in the genus *Syzygitis* Bergroth, accompanied by a discussion of its correct specific name. Illustrations of *Polychisme ferruginosus* include a dorsal view, details of the abdomen, genital capsule, and spermatheca.

Recently we have investigated the relationships of a number of taxa that had been placed in the Ischnorhynchinae. Among these was the Neotropical genus *Polychisme.* This genus, before our study, contained two nominal species, *Imbrius ferruginosus* Stål, originally described from Colombia, and *Pachymerus poecilus* Spinola, originally described from Chile and placed in *Polychisme* by Scudder (1962). *Polychisme* was a replacement name by Kirkaldy (1904) for *Imbrius* Stål (1874) which was preoccupied. The type species of *Imbrius* Stål was *Imbrius ferruginosus* Stål by monotypy, therefore, *ferruginosus* becomes the type species of *Polychisme.*

To our surprise, we discovered that not only are *ferruginosus* and *poecilus* not congeneric but, in fact, do not belong in the same subfamily.

One of the important characteristics of the subfamily Ischnorhynchinae is the dorsally placed spiracles. In *P. poecilus* the spiracles are located dorsally on the conjunctiva of all abdominal segments, as in other genera of Ischnorhynchinae (in another paper we will discuss the systematic position of various taxa of "Ischnorhynchinae" with dorsally placed spiracles). However, *P. ferruginosus* does not have dorsally placed spiracles on abdominal segments three through seven (Figs. 4, 5). The spiracles, to the contrary, are placed on the "sternal shelf," which is an integral part of the abdominal sternum. The spiracles are, thus, definitely ventral. Sweet (1981) indicated that for the Lygaeidae the plesiomorphic spiracle position is dorsal. If this is true, it excludes *ferruginosus* as a member of the Ischnorhynchinae because the position of the spiracles on the sternal shelf is apomorphic.

The question then is, to what subfamily does *ferruginosus* have its closest phylogenetic relationship? Before giving our interpretation, it should be explained that spiracle 2 is actually placed dorsally (or laterally) on the membrane between the tergum and sternum.

P. ferruginosus is not a member of the Rhyparochrominae because the suture

between sterna 4 and 5 is not fused and it has a conjunctival membrane. Fusion of these sternites is the most important synapomorphy uniting the various taxa of Rhyparochrominae. *P. ferruginosus* also lacks head trichobothria, a feature found in most rhyparochromines (although probably a plesiomorphy).

There are only two lygaeid subfamilies with a spiracular arrangement similar to that found in *ferruginosus,* the Artheneinae and the Oxycareninae. To which, if either, of these does *ferruginosus* belong?

We believe the closest phylogenetic relationships are with the Artheneinae. The presumed synapomorphies are not compelling but are perhaps more parsimonius than the alternative (closest relationship to the Oxycareninae). *P. ferruginosus* lacks inner laterotergites and does not have a reduced trichobothrial pattern on sterna 5, 6, and 7. The first of these can be considered a synapomorphy (although a weak one because it is based on the loss of a character), and the second is a plesiomorphy relative to the condition in the Oxycareninae.

Additional features in which *P. ferruginosus* agrees with the Artheneinae and differs from the Oxycareninae is the presence in *ferruginosus* of a hamus in the hind wing and the explanate lateral border of the pronotum. None of these relationships are compelling, but we consider it preferable to place *P. ferruginosus* in the Artheneinae for the present rather than to erect an additional subfamily.

Slater, Woodward and Sweet (1962) recognized three tribes in the Artheneinae: the Artheneini Stål (Palearctic); Dilompini (Australian); and Nothochromini (New Zealand). (In the same paper these authors actually treat Nothochrominae also as a distinct subfamily). Malipatil (1977), after examining and describing the nymphs, supported the placement of *Nothochromus* at a tribal level within the Artheneinae.

The occurrence of this artheneine in the Neotropics means that the subfamily now is known from all major faunal regions (except Nearctic), and suggests that the Artheneinae have a Gondwanaland origin.

We feel, however, that *ferruginosus* cannot be assigned to any of the above tribes and erect for it a new tribe.

Polychismini, new tribe

Diagnosis.

1. Spiracles on sternal shelf rather than on sternum below shelf (Figs. 4, 5).
2. Elongate, slender coiled spermatheca without terminal bulb and attendant flanges (Fig. 3).
3. Antenniferous tubercles visible from above.
4. Very short bucculae.
5. Dorsal surface strongly and coarsely punctate.
6. Metathoracic scent gland auricle curving posteriorly.
7. Juga short and remote from apex of tylus.
8. Scutellum lacking paired carinae.

Because *P. ferruginosus* and *P. poecilus* are not congeneric and *ferruginosus* is the type species of *Polychisme, poecilus* must be treated under another generic name.

Bergroth (1921) described *Syzygitis reflexa* from Chile as a new genus and species. Slater (1967) synonymized this species with *Polychisme poecilus.* The generic name

Syzygitis, thus, is available and becomes the correct generic name to be used with *Pachymerus poecilus* Spinola. For the present we retain this genus in the Ischnorhynchinae.

It should be noted that Spinola (1852) described *Pachymerus hyalinatus* and *Pachymerus poecilus* in the same paper, the former on pages 148–149, the latter on page 149. *P. hyalinatus,* thus, has page priority. Signoret (1863) suggested that *poecilus* might be only a color variety of *hyalinatus,* but in 1885 he listed *hyalinatus* as a synonym of *poecilus.* Berg (1896) listed *poecilus* as a synonym of *hyalinatus.* Reed (1900) did the reverse, listing *hyalinatus* as a synonym of *poecilus.* Scudder (1962) also used the name *poecilus,* and synonymized *Imbrius chilensis* Haglund with it, without mentioning *hyalinatus.*

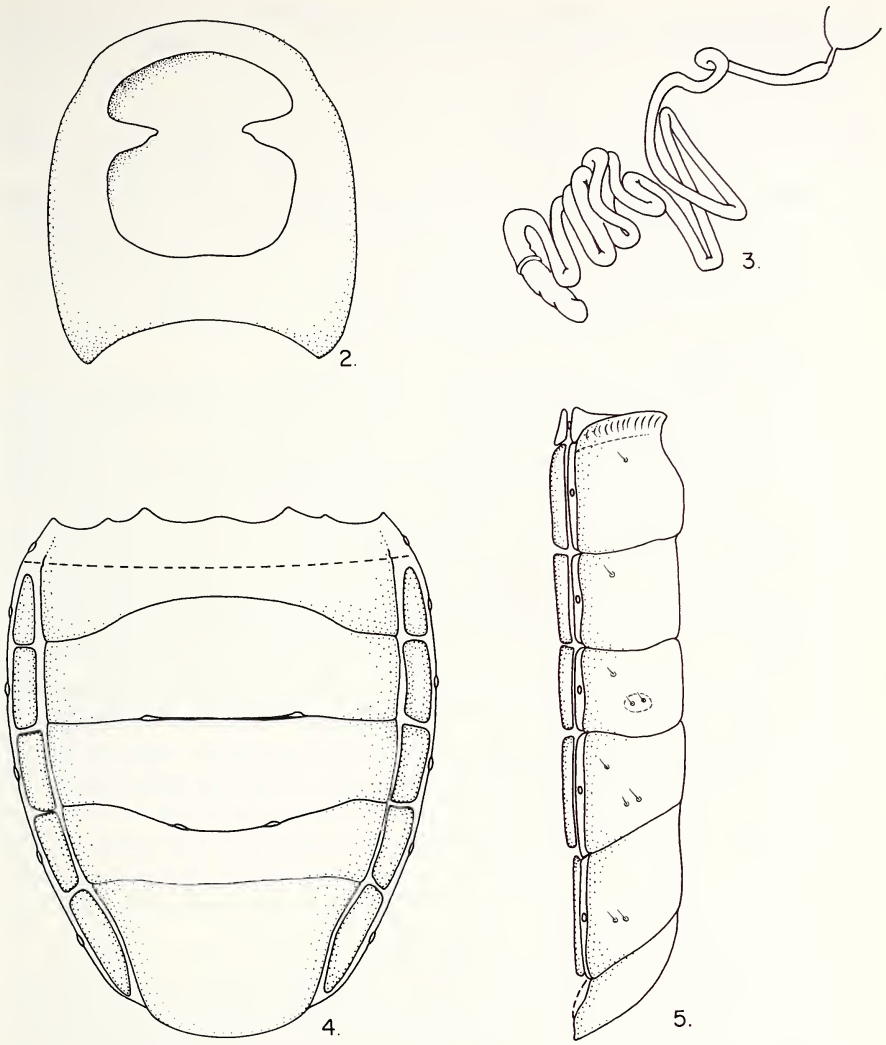
We consider this a good example of the ambiguity raised by using the rule of first revisor, versus the objectivity of using page and line priority. Did Signoret (1863) place *poecilus* as a junior synonym of *hyalinatus* by suggesting that it was a possible color variety, or did Signoret (1885) make *hyalinatus* a junior synonym by listing it as a synonym of *poecilus*? Berg and the other South American authors apparently thought the former; Scudder (1962) believed the latter. Given the ambiguity of the 1863 Signoret reference and the unambiguous nature of his 1885 treatment, we are inclined to believe that, acting as first revisor, Signoret (1885) established *poecilus* as the proper nomen for the taxon. *Syzygitis poecilus* Spinola, thus, is a new combination.

All measurements are in millimeters.

Polychisme ferruginosus (Stål)
Figs. 1–5

Description. General coloration dull yellowish (griseus) marked with dark red as follows: greater portion of head; anterior pronotal lobe (except for explanate lateral margins and collar), a conspicuous median macula and a pair of obscure streaks midway between meson and lateral margins on anterior one-half of posterior pronotal lobe; basal and lateral portions of scutellum; a conspicuous spot in middle of clavus at level of distal end of scutellum; a series of four small irregular maculae on corium placed obliquely from lateral corial margin at level of distal end of clavus, mesoanteriorly, with inner macula lying just within medius at level of middle of claval commissure; and a macula midway along apical corial margin and a larger one encompassing apex of corium. Membrane hyaline, with a series of dark brown spots. Venter of head and anterior lobe of propleuron and mesopleuron chiefly black (but shading to reddish yellow dorsally and strongly pruinose giving a gray appearance interspersed with coarse, shining, black punctures), strongly contrasting with bright-yellow acetabula, metathoracic scent gland auricle, and posterior lobe of metapleuron. Abdominal sternum dark red brown with strongly contrasting rectangular pruinose "blocks" on sterna 2–6 and pruinose spots surrounding lateral trichobothria. Legs yellow, with brown on all femora except proximal and distal ends, and suffused areas on tibiae and third tarsal segments. Antennal segments one and two dull reddish, strongly contrasting with dark chocolate brown to almost black coloration of segments three and four. Body coarsely punctate above, on head, and pronotum below. Mesosternum smooth, black, and polished.

Fig. 1. *Polychisme ferruginosus* Stål, dorsal view.



Figs. 2–5. *Polychisme ferruginosus* Stål. 2. Genital capsule, dorsal view. 3. Spermatheca. 4. Abdomen, dorsal view. 5. Abdomen, lateral view.

Head non-declivent, tylus attaining middle of first antennal segment. Length head 0.64, width 0.72; interocular space 0.44. Pronotal surface irregular, transverse impression interrupted slightly mesad of midway between meson and margin by an elevated calloused area "connecting" calli with posterior lobe. Anterior collar broad, elevated with 2 to 2½ rows of large punctures. Lateral margins deeply sinuate, distinctly explanate throughout. Posterior margin very slightly convex. Length pronotum 0.80, width pronotum 1.44. Scutellum lacking a median ridge, but with a Y-shaped cal-

loused yellow elevation. Length scutellum 0.60, width scutellum 0.74. Clavus broad with four distinct rows of punctures. Length claval commissure 0.54. Lateral corial margins slightly and evenly convex, broadly explanate. Apical corial margin slightly concave on distal two-thirds. Midline distance apex clavus-apex corium 0.86. Midline distance apex corium-apex membrane 0.72. Metathoracic scent gland auricle straight, moderately elongate, slightly angled dorso-ventrad. Evaporative area occupying most of mesopleuron. Fore femora moderately incrassate, mutic. Labium extending posteriorly almost to posterior margin of mesocoxae, first segment attaining base of head. Length labial segments I 0.40, II 0.40, III 0.34, IV 0.26. Antennal segments I, II, III terete, segment IV broader and fusiform. Length antennal segments I 0.26, II 0.44, III 0.28, IV 0.50. Total body length 3.92.

Described from a male from Colombia: Bucaramanga, 2,500 meters, Santander, 25.IV.1984 (Bordon).

Discussion. There is considerable color variation in the series before us, some specimens differ from the specimen described above in being almost entirely reddish yellow with dark color present only as claval maculae and the fourth antennal segment. The head and pronotal calli may be bright red contrasting with the anterior collar, a complete median stripe and fainter but still complete meso-lateral stripes and humeral angles of posterior pronotal lobe which are chocolate brown. Actually, although the specimen we describe above is vividly marked, it is the only specimen in the study series that has a dark third antennal segment; all other specimens have antennal segments I, II, III uniformly reddish or yellowish, contrasting with the dark fourth segment.

Despite the marked color variation, there is very little structural variation other than that found in a single male from "Cerro Oroque, Santander del Norte, Colombia." This specimen is either aberrant or more likely represents a different species. The anterior lobe of the pronotum has a conspicuous central elevation that extends well onto the posterior pronotal lobe, thus, confining the transverse impression to the lateral halves of the pronotum; the posterior pronotal lobe is somewhat rugulose, and the anterior collar less elevated. The corium has extensive dark striping posteriorly where it surrounds and forms two pale yellow macula adjacent to the apical corial margin. The genital capsule is as in Figure 2.

Material examined. Colombia: 2♂♂, Cund 2,900 m, Guasca, 10.III.1942 (Chapin). 1♂, locality as specimen described above. 1♂, 1♀, Roque, Santander del Norte, 8–9.VI.1965 (J. & B. Bechyne). 1♀, Mesa Rica, Santander del Norte, 30.V.1965 (J. & B. Bechyne). *Venezuela:* 2♂♂, Pmo. de Guaramacal, 3,200 m, BcCono Edo. Trujillo, 16.XI.1981 (Bordon). 1♂, Edo. Merida, El Valle, 2,400 m, 22.V.1983 (Bordon). 1♂, La Garita, 2,300 m, Tachira, 25.III.1984 (Bordon). 1♂, Toliferico, Merida, 3,500 m, 29.VI.1968 (J. & B. Bechyne). 1♂, 1♀, (in copulo), Rancho Grande, 1,800 m, 21.II.1967 (J. & B. Bechyne). 1♀, Pio Zmo (sp.?) la Negros, Tachira, 24.VI.1979 (B. Bechyne).

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